

PENGARUH *HIGH INTENSITY INTERVAL TRAINING* TERHADAP KADAR *TUMOR NECROSIS FACTOR α* (TNF- α) PADA WANITA DENGAN OBESITAS

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ABSTRAK

Pendahuluan: Obesitas menyebabkan terjadinya perubahan parameter fisiologis, salah satunya peningkatan mediator inflamasi *Tumor Necrosis Factor α* (TNF- α). Peningkatan mediator inflamasi TNF- α pada obesitas dikaitkan dengan kondisi inflamasi kronis derajat rendah yang meningkatkan risiko terjadinya komplikasi obesitas. Latihan fisik yang dinilai efektif pada seseorang dengan obesitas sekaligus mampu memberikan pengaruh terhadap kadar TNF- α adalah *High Intensity Interval Training* (HIIT). **Tujuan:** Penelitian ini bertujuan untuk mengetahui pengaruh intervensi HIIT terhadap kadar TNF- α pada wanita dengan obesitas. **Metode:** Penelitian ini menggunakan rancangan penelitian *Quasi Experimental Pre and Post Design Without Control Group*. Sebanyak 18 orang subyek dipilih dengan metode *consecutive sampling*. Subyek mengikuti masa adaptasi selama 2 minggu, kemudian diikuti masa intervensi HIIT selama 10 minggu dengan 3 sesi latihan setiap minggunya. Pengukuran TNF- α dilakukan sebelum dan sesudah intervensi dengan metode ELISA dari sampel serum darah. Analisis data menggunakan *Wilcoxon Signed Rank Test*. **Hasil:** Terdapat penurunan kadar serum TNF- α yang dinyatakan signifikan menggunakan *Wilcoxon Signed Rank Test* ($p=0,006$) setelah intervensi HIIT. Kadar TNF- α sebelum intervensi HIIT didapatkan rerata $4,354 \pm 1,996$ pg/mL dan setelah intervensi HIIT didapatkan rerata $3,436 \pm 0,809$ pg/mL. Kadar TNF- α setelah intervensi HIIT mengalami penurunan sebesar 0,918 pg/mL (21,08%). **Kesimpulan:** Terdapat pengaruh HIIT pada wanita dengan obesitas terhadap kadar TNF- α , yaitu menurunkan kadar TNF- α .

Kata kunci: *High Intensity Interval Training*, HIIT, Obesitas, TNF- α , *Tumor Necrosis Factor α*

THE EFFECT OF HIGH INTENSITY INTERVAL TRAINING ON *TUMOR NECROSIS FACTOR α* (TNF- α) LEVELS IN OBESE WOMEN

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ABSTRACT

Introduction: Obesity results in changes of physiological parameters, one of which is the increase of *Tumor Necrosis Factor α* (TNF- α) inflammatory mediator. The increase of TNF- α inflammatory mediator in obesity was associated with chronic low-grade inflammation state which increases the risk of complication of obesity. Physical exercise that is considered effective and has effect on TNF- α levels is High Intensity Interval Training (HIIT). **Objective:** This study aims to find the effect of HIIT on TNF- α levels in obese women. **Methods:** This study used a Quasi Experimental Pre and Post Design Without Control Group. Eighteen subjects were selected with consecutive sampling method. Subjects participated in 2 weeks adaptation period, followed by 10 weeks HIIT intervention with 3 sessions each week. TNF- α was measured before and after intervention with ELISA method using blood serum sample. Data was analysed using Wilcoxon Signed Rank Test. **Results:** There was a significant decrease of serum TNF- α using Wilcoxon Signed Rank Test ($p=0,006$) after HIIT intervention. TNF- α levels before HIIT intervention were obtained an average of $4,354 \pm 1,996$ pg/mL and after HIIT intervention were obtained an average of $3,436 \pm 0,809$ pg/mL. TNF- α after HIIT intervention were decreased by 0,918 pg/mL (21,08%). **Conclusion:** There is effect of HIIT program intervention in obese women on TNF- α levels by reduce TNF- α levels.

Keywords: *High Intensity Interval Training*, HIIT, Obesity, TNF- α , *Tumor Necrosis Factor α*